

## CLAIMS

What is claimed is:

1. A powerplane for use in a backplane power distribution system, comprising:  
2       (a) a conductive sheet;  
3       (b) at least one source location on said conductive sheet for coupling to a  
4              power source;  
5       (c) a plurality of load locations on said conductive sheet for coupling to at  
6              least one load;  
7       (d) a plurality of variable resistances between said at least one source  
8              location and said plurality of load locations to distribute substantially  
9              the same amount of current from said at least one source location to  
10             each of said plurality of load locations.

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a laminate having  
a plurality of interleaved dielectric layers and conductive layers wherein  
at least one of said conductive layers is used as a powerplane for distributing  
said power; and

a plurality of source locations and load locations, said source locations  
being provided to couple said powerplane to said power source and said load  
pins being provided to couple said powerplane to at least one load,

a plurality of variable resistances arranged on said powerplane to  
distribute current so the voltage difference between said load locations is  
reduced to near zero.

1 5.(formerly Claim 14) A backplane power distribution system according to claim  
2 11, wherein said source locations and said load locations define a plurality of holes  
3 passing through said laminate, said holes forming vias in each of said layers of said  
4 laminate, said vias being adapted to couple said backplane to said loads and said  
5 power source.

1 6.(formerly Claim 15) A backplane power distribution system according to claim  
2 14, wherein said laminate further includes source pins and load pins, and wherein a  
3 first number of said vias in said conductive layers are provided with plated perimeters  
4 for connection to said load pins and said source pins and a second number of said vias  
5 in said conductive layer are provided with an insulated perimeter for insulating said  
6 second number of vias from said load pins and source pins.

1 7.(formerly Claim 16) A backplane power distribution system according to claim  
2 11, wherein said conductive layers comprise copper.

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8.(formerly Claim 17) A backplane power distribution system according to claim 11, wherein said at least one load comprises at least one circuit board.

1 9.(New) A powerplane for use in a backplane power distribution system,  
2 comprising:  
3 (a) a conductive sheet;  
4 (b) means to couple a power source to said conductive sheet;  
5 (c) means to couple at least one load to said conductive sheet;  
6 (d) means to distribute substantially the same amount of current from said  
7 power source to all of said at least one load.

1 10.(New) The powerplane of Claim 9, wherein said conductive sheet is copper.

1 11.(New) The powerplane of Claim 9, wherein said means to couple said power  
2 source and said means to couple said at least one load to said conductive sheet are  
3 selected from the group comprising: connector straps, pads, and vias which receive a  
4 plurality of source pins and a plurality of load pins, respectively.

1 12.(New) The powerplane of Claim 9, wherein said means to distribute  
2 substantially the same amount of current further comprises a plurality of resistance  
3 variations in the structure of the powerplane.

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13.(New) The powerplane of Claim 11, wherein

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said plurality of load pins further comprises near load pins and distant load pins with said near load pins being nearer to said plurality of source pins than said distant load pins, and

wherein said means to distribute substantially the same amount of current further comprises:

means to variably increase the resistance of the powerplane between said plurality of source pins and said load pins, and  
means to substantially reduce the voltage difference between said near load pins and said distant load pins.

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